

WHAT IS CLAIMED IS:

1. An isolated nucleic acid encoding a polypeptide having at least one of the biological activities of an EPH-like receptor protein tyrosine kinase, the nucleic acid selected from the group consisting of:
 - (a) the nucleic acids set forth in any of SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14 or SEQ ID NO: 16 and their complementary strands;
 - (b) a nucleic acid hybridizing to the coding regions of the nucleic acids in any of SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14 or SEQ ID NO: 16; and
 - (c) a nucleic acid of (b) which, but for the degeneracy of the genetic code, would hybridize to the coding regions of the nucleic acids in any of SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14 or SEQ ID NO: 16.
2. A polypeptide product of expression of a nucleic acid of Claim 1 in a procaryotic or eucaryotic host cell.
3. A nucleic acid of Claim 1 which is of human origin.
4. A nucleic acid of Claim 1 which encodes a polypeptide having part or all of the amino acid sequence as shown in any of SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14 or SEQ ID NO: 16.
5. A nucleic acid of Claim 1 encoding a fragment comprising an EPH-like receptor extracellular domain.
6. A nucleic acid of Claim 1 which is cDNA, genomic DNA, synthetic DNA or RNA.

7. A nucleic acid of Claim 1 which includes one or more codons preferred for expression in E. coli host cells.

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8. A nucleic acid of Claim 1 which includes one or more codon preferred for expression in mammalian cells.

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9. A nucleic acid encoding amino acids 6-524 as set forth in SEQ ID NO: 10, and optionally encoding an amino terminal methionyl residue.

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10. A nucleic acid encoding amino acids 1-547 as set forth in SEQ ID NO: 12, and optionally encoding an amino acid terminal methionyl residue.

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11. A nucleic acid encoding amino acids 21-547 as set forth in SEQ ID NO: 14, and optionally encoding an amino terminal methionyl residue.

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12. A nucleic acid encoding amino acids 23-553 as set forth in SEQ ID NO: 16, and optionally encoding an amino terminal methionyl residue.

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13. A nucleic acid encoding a chimeric protein, wherein the protein comprises an EPH-like receptor extracellular domain fused to a heterologous receptor cytoplasmic domain.

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14. A nucleic acid of Claim 13 wherein the extracellular domain is selected from the group consisting of HEK5, HEK7, HEK8 and HEK11 extracellular domains.

15. A biologically functional plasmid or viral DNA vector including a nucleic acid of Claim 1.
- 5 16. A procaryotic or eucaryotic host cell stably transformed or transfected with the plasmid of Claim 15.
- 10 17. A method of producing an EPH-like receptor protein tyrosine kinase comprising culturing the host cell of Claim 16 to allow the host cell to express the EPH-like receptor protein tyrosine kinase.
- 15 18. An isolated polypeptide having an amino acid sequence as shown in any of SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14 or SEQ ID NO: 16, or a fragment or analog thereof, wherein the polypeptide has at least one of the biological activities of an EPH-like receptor protein tyrosine kinase.
- 20 19. Purified and isolated HEK5 receptor.
20. Purified and isolated HEK7 receptor.
- 25 21. Purified and isolated HEK8 receptor.
22. Purified and isolated HEK11 receptor.
- 30 23. A polypeptide of Claim 18 wherein the biological activity is the binding of a ligand.
24. A polypeptide of Claim 18 which is of human origin.
- 35 25. A polypeptide of Claims 18 characterized by being the product of procaryotic or eucaryotic expression of an exogenous DNA sequence.

26. A polypeptide of Claim 25 wherein the exogenous DNA is a cDNA.

5 27. A polypeptide of Claim 25 wherein the exogenous DNA is a genomic DNA.

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10 28. An antibody or fragment thereof specifically binding a polypeptide of Claim 18.

29. An antibody of Claim 28 which is a monoclonal antibody.

15 30. A pharmaceutical composition comprising a therapeutically effective amount of a polypeptide of Claim 18 in a mixture with a pharmaceutically acceptable adjuvant, carrier, solubilizer or diluent.

20 31. A pharmaceutical composition comprising a therapeutically effective amount of an antibody of Claim 28 in a mixture with a pharmaceutically acceptable adjuvant, carrier, solubilizer or diluent.

25 32. A method for modulating the endogenous activation of an EPH-like receptor protein tyrosine kinase comprising administering an effective amount of a polypeptide of Claim 18.

30 33. A method for modulating the synthesis of an EPH-like receptor protein tyrosine kinase comprising hybridizing an antisense oligonucleotide to a nucleic acid of Claim 1.

34. A method of identifying a ligand that binds to a receptor polypeptide of Claim 18 comprising the steps of:

- 5 a) exposing at least one molecule to the receptor polypeptide for a time sufficient to allow formation of a receptor/ligand complex;
- b) removing non-complexed molecules; and
- 10 c) detecting the presence of the molecule bound to the receptor polypeptide.

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